

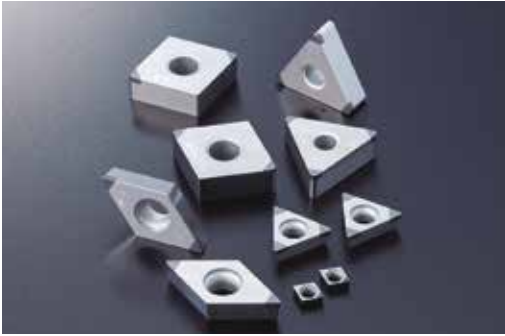
CBN Grades for Sintered Alloy Finishing

SUMIBORON BN7115

Excellent Stability in High-Precision Finishing of Sintered Alloy



SUMIBORON BN7115



General Features

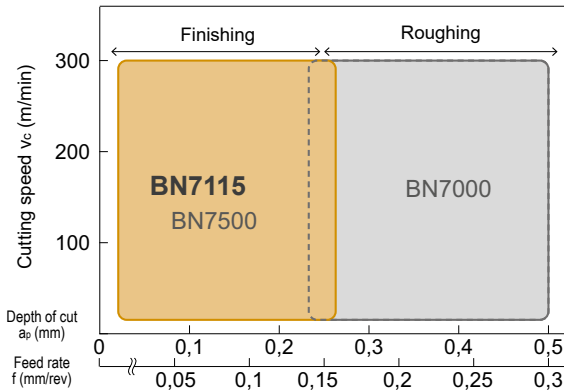
Good wear resistance through high CBN content also delivers superior fracture resistance by increasing the binding strength between CBN particles.

BN7115 provides stable performance for high-speed finishing work and is ideal for finishing of sintered alloys.

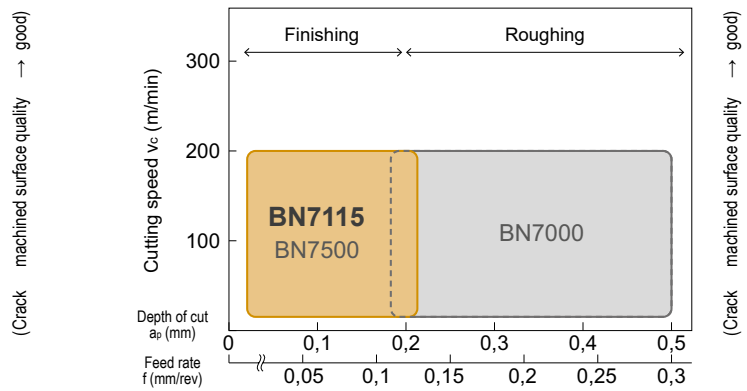
New cutting edge treatment with an emphasis on fracture resistance: "US" type chipbreaker now available.

Application Range

- Sintered Alloy (50–95 HRB/90–200 HV)

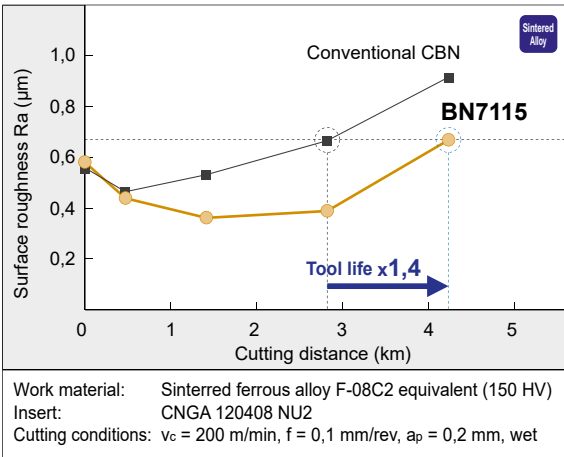


- High-density/Sintered Alloy (30–65 HRC/300–800 HV)

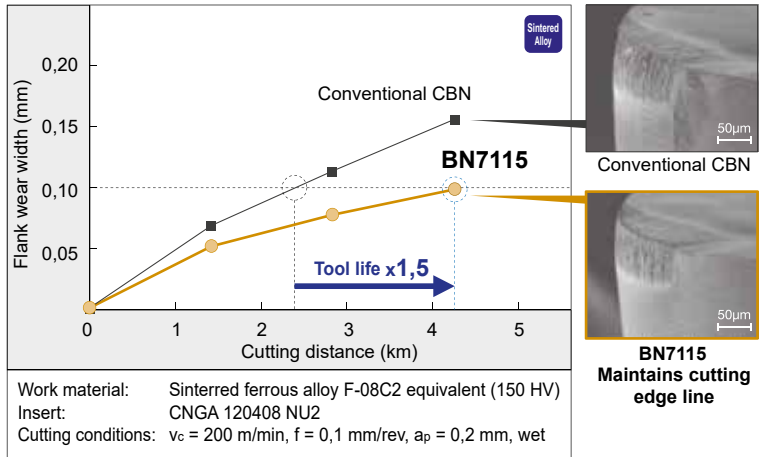


Cutting Performance

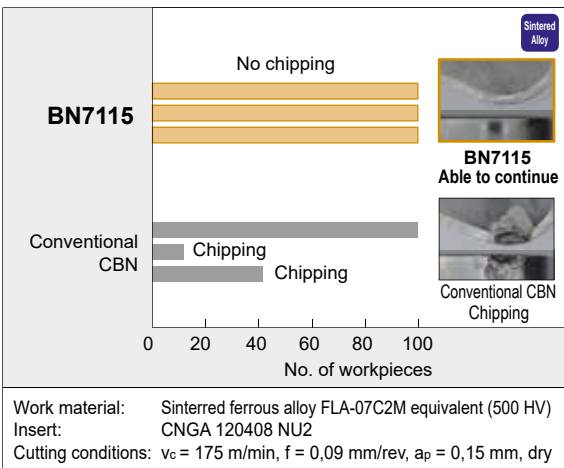
- Continuous Cutting (Surface Roughness)



- Continuous Cutting (Wear Resistance)



- Interrupted Cutting (Fracture Resistance)



With improved CBN particle/binder boundary strength due to the special binder and improved binding strength between CBN particles thanks to our proprietary sintering process, the edge sharpness in sintered alloy machining is excellent, suppressing burrs and cracks.

BN7115

High edge sharpness

Conventional Tool

Cutting edge dulled

Removal of binder → comparison of CBN particles' binding strength

■ Stock Items

● Multi-Cornered Single-Use Inserts/Negative

Shape	Cat. No.	BN7115	No. of corners	Dimensions (mm)			
				Inscribed circle	Thick-ness	Screw hole Ø	Nose radius
	CNGA 120404 NU2	○					0,4
	120408 NU2	●	2	12,7	4,76	5,16	0,8
	120412 NU2	○					1,2
	CNGA 120404 LF NU2	○	2	12,7	4,76	5,16	0,4
	120408 LF NU2	○					0,8
	CNGA 120404 LE NU2	○	2	12,7	4,76	5,16	0,4
120408 LE NU2	○					0,8	
	CNGA 120404 LS NU2	○	2	12,7	4,76	5,16	0,4
	120404 HS NU2	○	2	12,7	4,76	5,16	0,4
	120404 US NU2	○	2	12,7	4,76	5,16	0,4
	DNGA 150404 NU2	○	2	12,7	4,76	5,16	0,4
150408 NU2	○					0,8	
	TNGA 160404 NU3	○	3	9,525	4,76	3,81	0,4
	160408 NU3	○					0,8
	160412 NU3	○					1,2
	TNGA 160404 LF NU3	○	3	9,525	4,76	3,81	0,4
	160408 LF NU3	○					0,8
	TNGA 160404 LE NU3	○	3	9,525	4,76	3,81	0,4
	160408 LE NU3	○					0,8
	TNGA 160404 LS NU3	○	3	9,525	4,76	3,81	0,4
	TNGA 160404 HS NU3	○	3	9,525	4,76	3,81	0,4
	160416 HS NU3	●	3	9,525	4,76	3,81	1,6
TNGA 160404 US NU3	○	3	9,525	4,76	3,81	0,4	
	VNGA 160404 NU2	●	2	9,525	4,76	3,81	0,4
	160408 NU2	○					0,8

● Multi-Cornered Single-Use Inserts/Positive

Shape	Relief angle	Cat. No.	BN7115	No. of corners	Dimensions (mm)			
					Inscribed circle	Thick-ness	Screw hole Ø	Nose radius
	7°	CCGW 060204 NU2	●	2	6,35	2,38	2,8	0,4
		CCGW 09T304 NU2	●	2	9,525	3,97	4,4	0,4
		09T308 NU2	○					0,8
		CCGW 09T308 HS NU2	●	2	9,525	3,97	4,4	0,8
	7°	DCGW 070204 NU2	○	2	6,35	2,38	2,8	0,4
		070208 NU2	●					0,8
		DCGW 070208 HS NU2	●	2	6,35	2,38	2,8	0,8
		DCGW 11T302 NU2	●					0,2
		11T304 NU2	○	2	9,525	3,97	4,4	0,4
		11T308 NU2	●					0,8
		DCGW 11T302 LF NU2	○					0,2
		11T304 LF NU2	●	2	9,525	3,97	4,4	0,4
		11T308 LF NU2	●					0,8
		DCGW 11T302 LE NU2	○					0,2
		11T304 LE NU2	○	2	9,525	3,97	4,4	0,4
		11T308 LE NU2	○					0,8
		DCGW 11T302 LS NU2	○					0,2
		11T304 LS NU2	○	2	9,525	3,97	4,4	0,4
		11T308 LS NU2	○					0,8
		DCGW 11T304 HS NU2	●	2	9,525	3,97	4,4	0,4
11T308 HS NU2	●					0,8		
	11°	TPGW 110304 NU3	○	3	6,35	3,18	3,4	0,4
		110308 NU3	○					0,8
		TPGW 110302 LF NU3	○					0,2
		110304 LF NU3	○	3	6,35	3,18	3,4	0,4
		110308 LF NU3	○					0,8
		TPGW 110304 LE NU3	○	3	6,35	3,18	3,4	0,4
	5°	VBGW 110304 NU2	○	2	6,35	3,18	2,8	0,4
		VBGW 160404 NU2	●	2	9,525	4,76	4,4	0,4
		160408 NU2	○					0,8
		VBGW 160408 LE NU2	●	2	9,525	4,76	4,4	0,8

Cutting Edge Preparation

Symbol	Application
LF/LE	Low cutting force
LS	General purpose continuous cutting
HS/US	Heavy interrupted machining

● Single-Use Inserts/Positive

Shape	Relief angle	Cat. No.	BN7115	No. of corners	Dimensions (mm)			
					Inscribed circle	Thick-ness	Screw hole Ør	Nose radius
	7°	CCEW 03X102 LF NU	○	1	3,5	1,4	1,9	0,2
	11°	TPGW 160404 NU	●	1	9,525	4,76	4,3	0,4

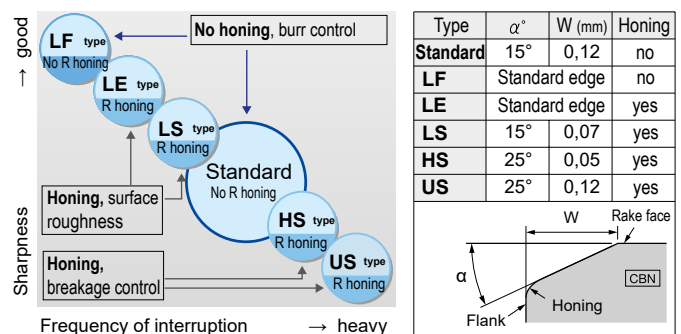
■ Recommended Cutting Conditions

● Sintered Alloy

Work material	Grade	Cutting conditions (min.–optimum–max.)		
		Cutting speed v_c (m/min)	Feed rate f (mm/rev)	Depth of cut a_p (mm)
General sintered alloy	BN7115	10–150–300	0,01–0,08–0,15	0,05–0,13–0,25
	BN7000	10–150–300	0,01–0,15–0,30	0,05–0,25–0,50
High-density sintered alloy	BN7115	10–100–200	0,01–0,06–0,12	0,05–0,10–0,20
	BN7000	10–100–200	0,01–0,15–0,30	0,05–0,25–0,50

■ Cutting Edge Specification

BN7115

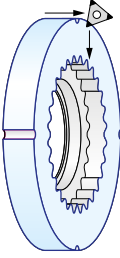


New US type emphasises fracture resistance, ideal for heavy interrupted cutting.

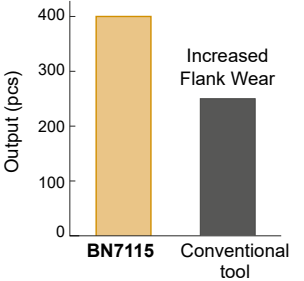
Application Examples

Sintered ferrous alloy FLA-07C2M (500 HV), gear Sintered Alloy

Excellent wear resistance, maintaining good surface roughness. Achieves long tool life 1,5 times or longer that of conventional tools.



Tool life criteria: surface roughness/burr height

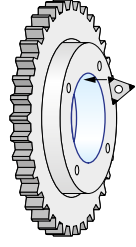


Tool	Output (pcs)
BN7115	~400
Conventional tool	~250

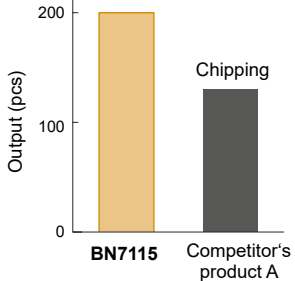
Insert: TNGA 160404 HS NU3
Cutting conditions: $v_c = 180$ m/min, $f = 0,1$ mm/rev, $a_p = 0,2$ mm, wet

Sintered ferrous alloy FLA-07C2M (500 HV), gear Sintered Alloy

Surface roughness improved via excellent fracture resistance. Achieves long tool life 1,5 times or longer that of competitors' products.



Tool life criteria: surface roughness

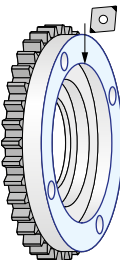


Tool	Output (pcs)
BN7115	~200
Competitor's product A	~130

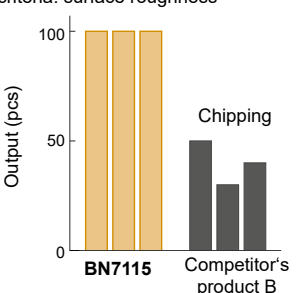
Insert: TNGA 160404 US NU3
Cutting conditions: $v_c = 200$ m/min, $f = 0,1$ mm/rev, $a_p = 0,1$ mm, wet

Sintered ferrous alloy F-08C2 (450 HV), gear Sintered Alloy

Surface roughness improved via excellent fracture resistance. Achieves long tool life 1,5 times or longer that of competitors' products.



Tool life criteria: surface roughness

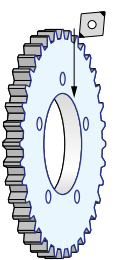


Tool	Output (pcs)
BN7115	~100
Competitor's product B	~40

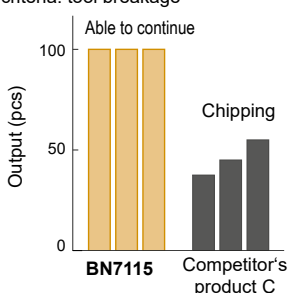
Insert: CNGA 120404 US NU2
Cutting conditions: $v_c = 170$ m/min, $f = 0,08$ mm/rev, $a_p = 0,10$ mm, wet

Sintered ferrous alloy F-08C2 (450 HV), gear Sintered Alloy

Excellent fracture resistance for sharp edges as well. Achieves stable tool life twice or longer that of competitors' products.



Tool life criteria: tool breakage



Tool	Output (pcs)
BN7115	~100
Competitor's product C	~40

Insert: CNGA 120408 LF NU2
Cutting conditions: $v_c = 200$ m/min, $f = 0,1$ mm/rev, $a_p = 0,2$ mm, dry



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